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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/750,461

01/02/2004

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EXAMINER

CHU, RANDOLPH I

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/750,461	<b>Applicant(s)</b> KAMEYAMA ET AL.	
	<b>Examiner</b> Randolph Chu	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/1/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the pixel" in lines 13 and 14 of page 153. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the degree of correlation" in line 22 of page 153. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the number of rectangular region" in line 25 of page 153. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the aforementioned correspondent relationship" in page 154. There is insufficient antecedent basis for this limitation in the claim.

Claims 2, 3, 6, 9, 10-16, 21, 22, 27-34, 35, 36, 41, 42, 47-50 are rejected with same matter described in rejection for claim 1.

***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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2. Claims 9,10, 27-30, 47-50 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 17-24 are all directed to a distributed software agent. "A program" refers to software, which is functional descriptive material, which per se is nonstatutory. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases.

***Allowable Subject Matter***

Claim 1-60 are allowable over prior art, if applicant overcome rejections above.

With respect to claims 1-3, 6, 9, 10-16, 21, 22, 27-34, 35, 36, 41, 42, 47-50, non of the prior art teach or fairly suggest the limitation of "varying (increasing) the number of rectangular regions within the reference patch and the second patch in a stepwise manner, estimating the aforementioned correspondent relationships, obtaining the coordinate converted frames, and calculating the correlative values for each number of rectangular regions, thereby obtaining a plurality of correlative values corresponding to the number of rectangular regions within the reference patch and the second patch; comparing the degrees of correlation for each number of rectangular regions, based on the plurality of the correlative values; and generating a synthesized frame having a higher resolution than either of the two frames, by administering interpolation calculations on the images within the second patch and the reference patch, based on

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the correspondent relationships, which were estimated among the pixels of the reference patch and the second patch having the number of rectangular regions therein that yielded the highest degree of correlation", in combination with the other claim. The prior art of Nakazawa et al. "Acquisition of High Resolution Digital Images by Interframe Integration" teaches increasing resolution of moving picture using the relationship of various interframe pixels with the block matching. However, Nakazawa et al. does not teach or fairly suggest varying (increasing) the number of rectangular regions within the reference patch and the second patch in a stepwise manner, estimating the aforementioned correspondent relationships, obtaining the coordinate converted frames, and calculating the correlative values for each number of rectangular regions, thereby obtaining a plurality of correlative values corresponding to the number of rectangular regions within the reference patch and the second patch; comparing the degrees of correlation for each number of rectangular regions, based on the plurality of the correlative values; and generating a synthesized frame having a higher resolution than either of the two frames, by administering interpolation calculations on the images within the second patch and the reference patch, based on the correspondent relationships, which were estimated among the pixels of the reference patch and the second patch having the number of rectangular regions therein that yielded the highest degree of correlation. These features are claimed in the independent claims 1-3, 6, 9, 10-16, 21, 22, 27-34, 35, 36, 41, 42, 47-50 render them allowable.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randolph Chu whose telephone number is 571-270-1145. The examiner can normally be reached on Monday to Thursday from 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RIC/



JOSEPH MANCUSO  
SUPERVISORY PATENT EXAMINER